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PATENT SPECIFICATION

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COMPLETE SPECIFICATION.

Process for the Production of Stable Mixtures Containing Vegetable Lecithin with or without Soya Oil.

We, METALLGESELLSCHAFT AKTIENGESELLSCHAFT, a Corporation organised under the Laws of Germany, of 45, Bockenheimer Anlage, Frankfurt-on-the-Main, Germany, and ALBERT DATZ, a German Citizen, of 18, Kranichsteinerstrasse, Frankfurt-on-the-Main, Germany, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to a process for the production of stable mixtures containing vegetable lecithin with or without soya oil.

Soya beans contain vegetable lecithin, considerable quantities of which are dissolved out during the extraction of the oil, for example with benzine. On steam being introduced into the miscella after evaporation of the solvent, the lecithin swells up and consequently separates quickly from the oil and settles down. After the bulk of the oil has been removed, this sediment consists of lecithin oil and water. Neither the oil nor the water can be completely separated from the lecithin by mechanical means. In order to obtain an anhydrous lecithin, the water must be expelled in vacuo, in which operation decomposition of the lecithin is unavoidable, notwithstanding the presence of oil, since as is known, lecithin is very sensitive to heat. The solubility of the resulting product is unfavourably affected in consequence. The oil can only be completely removed with difficulty and moreover a lecithin which is free from oil is more susceptible to decomposition than one containing the latter.

In itself, the oil content of lecithin is innocuous for most of the purposes for which the lecithin is used, soya bean oil being an edible oil of agreeable flavour and aroma. Whether the lecithin be used for edible purposes, such as an ingredient in the preparation of foodstuffs, or whether it be employed for pharmaceutical or dietetic purposes, it is practically unnecessary for the oil to be eliminated.

The undecomposed soya sediment precipitated from the oil by the introduction of steam is of a pale yellow colour and agreeable taste and smell, so that it can be employed direct without any purification and treatment, in the manufacture of food stuffs, such as margarine. However, it exhibits the extremely undesirable property of very quickly undergoing fermentation, thereby becoming decomposed and assuming a dark colour and an unpleasant taste and smell, so that it becomes unsuitable as a foodstuff and, if it is to be utilised, must first be subjected to an expensive purification and separation treatment.

Where the fresh soya sediment can be used as soon as obtained, no treatment of any kind is needed to prevent its deterioration. This state of things however, is only of very rare occurrence because for the most part, the foodstuff factories are not attached to the oil works.

The present invention provides a process for treating the fresh soya sediment in such a manner that it neither undergoes fermentation nor suffers any deterioration of its properties by the nature of the treatment, such as occurs, for example, in the course of drying in vacuo.

It has been ascertained in accordance with the invention that this result is attained by mixing the soya sediment with a carrier substance in such proportions that the mixture contains at least 25% by weight of lecithin and then spray-drying the mixture in warm air. Under these conditions the carrier substance is contained in every particle and envelops or carries the constituents of the soya sediment. Suitable carriers are substances that are adapted for the purpose for which the finished product is intended. Such carriers may for example be casein, gelatine, vegetable albumin, glucose, gelatinised starch, blood, blood serum, flour and a variety of other substances, but the use of milk as carrier substance is excluded from the scope of the present invention.

Whilst an emulsion consisting of

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lecithin, oil and water cannot be dried by atomisation accompanied by the application of heat, it is possible (with the mixture prepared in accordance with the hereindescribed process) to obtain in this manner, in the shortest time and without any decomposition, a durable product, in the state of powder, which will keep well, is readily soluble and can be applied to a variety of uses.

Pure lecithin free from fat, is extremely susceptible to the action of the air and quickly undergoes alteration and decomposition on storage. If pure lecithin be mixed with one of the hereindescribed carrier substances and if necessary a liquid medium such as water or the like, to form a colloidal solution or emulsion suitable for spray-drying and if the mixture be spray-dried in warm air, each particle of lecithin will be enveloped in a sheath consisting of the carrier substance and is thus protected from any harmful effects. The hereindescribed process therefore also affords considerable advantages in the treatment of oil-free lecithin.

EXAMPLE.

50 parts by weight of an unfermented soya sediment composed of lecithin, oil and water, and from which the bulk of the oil has been removed, are mixed with 30 parts of casein to form a mass of uniform consistency, the mixture being then spray-dried in a current of warm air.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1). A process for the production of stable mixtures containing vegetable lecithin and soya oil which comprises mixing fresh unfermented soya sediment with a carrier substance other than milk, for example casein, gelatine, vegetable albumin, glucose or the like, in such proportions that the mixture contains at least 25% by weight of lecithin, and spray-drying said mixture in warm air.

2). A modification of the process as set forth in claim 1, in which oil-free lecithin is mixed with the carrier substance in such a manner as to form an emulsion and said emulsion is spray-dried in warm air.

3). The process for the production of stable mixtures containing vegetable lecithin with or with soya oil, substantially as described.

4). Stable mixtures containing vegetable lecithin, whenever produced by the process particularly described and ascertained.

Dated this 18th day of December, 1933.

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